

## REMARKS

The drawing, substitute sheet attached, has been amended responsive to the Official Action. An amendment to the specification has also been made to incorporate a new reference number associated with the centers of curvature. Additionally, the §112 issues have been addressed through amendments to the claims. In this regard claims 1, 5, 8, 11, 12 and 14 have been amended. Claim 1 has been additionally amended to incorporate the subject matter of claim 2 and claim 2 cancelled to insure avoidance of the prior art applied against the application. Claims 17 and 18 have been added to include pipe in certain of the combinations in positive recitation.

Turning to the rejections based upon prior art and before turning in detail to the claims, a short discussion of the nature and purpose of the invention appears in order. The present invention is directed to pipe clamps which operate in a very specific range as expressed variously in the claims. This range in turn imposes a specific range of compression on a pipe clamped therein without measured adjustment by the operator. The clamp is tightened until the attachment surfaces come together. Further tightening compresses the clamp but does not further compress the pipe. By using configurations selected for each standard pipe size, the compression on the pipe will automatically fall within an expected range simply upon bringing the attachment surfaces together.

The operations of conventional pipe clamps are reflected in the applied references. The clamp design understood to be most common has arcuate sections, straight sections, or wings, and fasteners associated with the straight sections. The arcuate sections are clearly smaller than the selected nominal standard pipe in some

aspect. Without crushing the pipe, the two sides of the clamp do not and are not intended to come together at the straight sections. The centers of curvature remain well past the plane of the straight sections in the clamped state.

This conventional type clamp is illustrated in the applied reference to Werner (US Pat. No. 6,099,191). The straight sections 42, as seen in Figure 1, are brought into a compressed state by the fasteners 46 without coming together. In that mechanism, the operator has the ability to greatly over-tighten the clamp on the pipe. This has been of little concern with the exclusive use of metal pipes in most applications.

The lesser employed clamp is one that includes two semicircular arcuate portions. There is no teaching or practice in the applied references that these semicircular arcuate portions are to be brought into a compressed relationship with the retained pipe. The clamps form a short circular cylinder which, as the present invention, cannot be tightened beyond juxtaposition of the straight sections.

Such semicircular clamps elements are shown in the applied references to Brown (US Pat. No. 4,998,691) and Giuliano (US Pat. No. 6,131,859). There is no teaching, as one would expect, regarding any clamping force on the pipe. These systems disclosed in Brown and Giuliano are concerned with retaining pipe from moving up or down in the hung position. Longitudinal extension of horizontally hung pipe is frequently a necessity as pipe typically carries fluids that can be of various temperature. The extending length of piping is subject to thermal expansion and contraction under those circumstances. In that instance, rigid longitudinal retention is not wanted. If gripping against sliding is desired, the more commonly used pipe clamp has been employed. Additionally, with the advent of plastic pipe and its qualification for certain

building industry uses, the Werner type clamp can crush the pipe. The Brown and Giuliano type pipe clamp avoids that concern but does not resolve the need for holding onto the pipe longitudinally.

In providing the specific compression without adjustment, the present invention resolves concerns, specific to plastic pipe, that mal adjustment would result in damage. At the same time, an acceptable sway brace can be formed through longitudinal restraint of the pipe.

Looking specifically to the claims, as amended, claim 1 recites the location of the centers of curvature when the attachment surfaces are against one another and the arcuate sections stressed and deformed about the specified outside diameter. Further, claim 1 recites a maximum distance when either bar is unstressed. These two features provide a range that satisfies the criticality in achieving the advantages of the present invention.

Claim 5 recites a maximum distance perpendicular to the attachment plane between the attachment plane and the concave side of the arcuate section for each elongate bar being less than the pipe when relaxed. This is recited as providing a designed clamping force imposed on the specified outside diameter with the attachment surfaces of the two bars positioned against one another. This functionally presents the range for clamping consistent with the invention. Claims 6, 7 and 8 further quantify the structure giving this result.

Claim 11 further places the functional recitations of claim 5 in the context of a sway brace. Claims 12, 13 and 14 again quantify the structure of the independent claim.

The Brown patent, applied as an anticipatory reference to claims 1, 3-6, 9 and 10, fails to teach, suggest or motivate to one that this arrangement with abutting clamp portions actually compresses the constrained pipe. Indeed, the teachings are limited to restraint in the up and down directions with a horizontally extending pipe (col. 1, lines 58-61). The rejection of these claims based on anticipation cannot be supported by Brown as there is no disclosed compression within a range to anticipate the criticality of the clamping forces.

The Giuliano patent, applied as an anticipatory reference to claims 1, 4-6 and 10, fails in the same respect. This patent specifically recognizes the arcuate sections of the disclosed clamp as being "semi-annular" (col. 3, lines 6-10). As such they would not be drawn into the relationship under stress where the center of curvature would lie in the plane of the attachment. Again, there is no anticipation.

The USPTO has established a standard under 35 U.S.C. 102, the reference must teach every element of the claim. MPEP § 2131 anticipation:

**TO ANTICIPATE A CLAIM, THE REFERENCE MUST TEACH EVERY ELEMENT OF THE CLAIM**

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990). Note that, in some circumstances, it is permissible to use multiple references in a 35 U.S.C. 102 rejection. See MPEP § 2131.01.

With none of the references teaching the range or any part thereof which provides the critical operation of limiting compression while providing a range thereof, independent of operator control, a *prima facie* case for anticipation cannot be supported by Brown, Giuliano or Werner.

The Brown patent is asserted to establish obviousness in claims 2, 8 11, 12 and 14-16. The Giuliano patent is asserted to establish obviousness in claims 2 and 8. Further, the Werner patent is asserted to establish obviousness in claims 11, 12 and 14-16. However, these patents fail to disclose the aforementioned range or its functional equivalent. Werner does not teach bringing the portions of the claim together and Brown and Giuliano do not teach any compression.

The U.S. PTO has established the standard for a *prima facie* case of obviousness in MPEP §2142, which states in relevant part:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 § 2143.03 for decisions pertinent to each of these criteria.

With none of the references teaching the range or any part thereof which provides the critical operation of limiting compression while providing a range thereof, independent of operator control, the third requirement for a *prima facie* case of obviousness cannot be supported by the references to Brown, Giuliano an Werner. The patents do not teach or

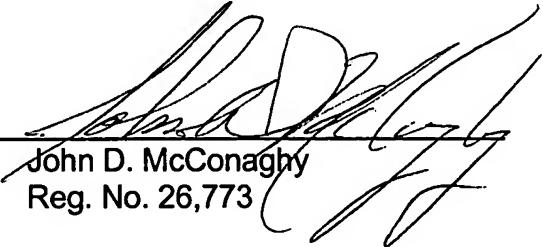
suggest any combination among them. Further, there is no suggestion of the mechanisms for establishing the critical range in these patents or of the features allowing the range of compression. Consequently, the first requirement for a *prima facie* case of obviousness also is not supported.

Neither a *prima facie* case for anticipation nor obviousness is supported by the applied references. Consequently, a notice of allowance is earnestly solicited.

Respectfully submitted,

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